Richard Kha

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Richard Kha | kRichard32

Toronto, Ontario, Canada

Education

- **University of Toronto** *September 2021 - August 2025*
  B.Sc. in Computer Science (Honours), focus in Artificial Intelligence Toronto, Canada
  - GPA: 3.95/4.00
  - Relevant coursework: Data Structures & Analysis, Algorithm design & Analysis, Operating Systems, Introduction to Databases, Introduction to Machine Learning, Introduction to Image Understanding, Knowledge Representation & Reasoning, Neural Networks & Deep Learning, Capstone Design Project

Experience

- **Optimizing remote JIT compilation for the JVM** *May 2024 - August 2024*
  Undergraduate researcher
  - Developed benchmarking tools to measure the speed of the JITServer
  - Implemented scheduling algorithms in C++ in order to improve the performance of the JITServer
  - Created a scheduling algorithm which reduces client runtime by up to 9% in high load senarios
  - Co-wrote the **paper** on our findings and performed an oral presentation at HotInfra '24
  - Done in collaboration with IBM CAS

- **Automating Data Analysis for Enhancing ASD Therapy Sessions** *September 2024 - December 2024*
  Undergraduate researcher
  - Implemented a diarization model from a recent paper in order to improve diarization accuracy
  - Conducted tests on diarization models in order to determine change in diarization quality
  - Created an improved version of the diarization model with increased accuracy in the child-adult speech scenario
  - Implemented an algorithm to create transcriptions with speaker labels more accurately given imperfect diarization and transcription
  - Wrote a brief **report** on our findings

Publications

[1] R. Kha, N. Sreekumar, A. Khrabrov, E. de Lara, A. Brown, M. Gabel, M. Pirvu. (2024). **Towards Optimal Remote JIT Compilation Scheduling for the JVM**. 2nd Workshop on Hot Topics in System Infrastructure (HotInfra 2024) held in conjunction with SOSP 2024. November 2024.

Skills

- **Programming Languages:** Java, Python, C/C++, JavaScript, React.js
- **Database Systems:** PostgreSQL
- **Data Science & Machine Learning:** Pytorch, Scikit-learn, NVIDIA Triton Inference Server, Deep neural networks
- **Cloud Technologies:** Google Cloud Platform, Docker
- **Version Control:** Git, GitHub
- **Other:** Linux, Data Structures & Algorithms

Projects

- **Koko: [A social app for seniors]** *July 2025 - Present*
  Tools: [Java spring boot, React native, Firebase, WebRTC, Google Oauth] [https://kokosocial.ca/]
  - Developed an android app to support social communication within older adult communities with a strong focus on accessibility
  - Full stack development; implemented both the front end mobile app and the java resource server for the app
  - Created messaging, video calling services, user creation services, and matchmaking services
  - Implemented a voice navigation feature for ease of use within the app
- **Bumblebench for JITserver benchmarking: [Tools for JITServer benchmarking]** *May 2024 - September 2024*
  Tools: [Python, Java, Docker, JSON] [GitHub]
  - Developed scripts in order to run benchmarks on a JITServer (disaggregated JIT compiler) under high load
  - Used Docker to containerize and limit the JITServer
  - Used JSON files to create configurations for the JITServer
  - Developed scripts in order to produce graphs to analyze performance of the JITServer
- **Capital City: [A monopoly clone]** *October 2022 - December 2022, July 2023 - October 2023*
  Tools: [Java, Java Swing, Gradle] [GitHub]
  - Developed a clone of monopoly
  - Implemented graphics, sound, game play, etc.
  - Implemented multiplayer via sockets and a server
  - Implemented concurrency mechanisms
  - Implemented persistance mechanisms
- **Crazy Minigames: [A rhythm game and fighting game application]** *March 2021 - July 2021, May 2023 - June 2023*
  Tools: [Java, JavaFX] [GitHub]
  - Developed a fighting game and rhythm game in a single application
  - Implemented graphics, sound, game play, etc.
- **Custom Tetris: [A modern tetris clone]** *January 2020 - February 2020, February 2024 - February 2024*
  Tools: [Java, JavaFX] [GitHub]
  - Created a clone of Tetris which implements modern Tetris gameplay features
  - Implemented graphics, sound, game play, etc.

Volunteer Experience

- **Coding/Math Tutor** *August 2021 - Present*
  YDC - Youth Dream Canada [Globe]
  - Mentored students in a 1 on 1 setting in computer science and math
  - Developed skills in teaching others more effectively and clearly
- **Rcognized Study Group Leader** *September 2022 - December 2022*
  University of Toronto
  - Set up meetings and coordinated a study group for MAT237 (Multivariable Calculus with Proofs)
  - Developed stronger presentation and communication skills

Honors and Awards

- **Undergraduate Student Research Award (USRA)** *May 2024 - September 2024*
  Natural Sciences and Engineering Research Council of Canada (NSERC) [Globe]
  - Award to support summer research done in 2024
- **The Friends of Victoria University Library Scholarship** *September 2023*
  University of Toronto [Globe]
  - Awarded to students who achieved overall A standing in second year
- **Margaret Slater Scholarship from the Senate of Victoria University** *September 2022*
  University of Toronto [Globe]
  - Awarded to students who achieved overall A standing in first year
- **University of Toronto Scholars Award** *September 2021*
  University of Toronto [Globe]
  - Awarded to outstanding secondary school students on admission